

C) REMARKS

1. Acknowledged.
2. Acknowledged.
3. The Examiner rejected claims 1-14 under 35 U.S.C. § 103(a) as being unpatentable over Sasaki et al., U.S. Patent No. 6,411,672 in view of an Sharma et al., U.S. Patent No. 5,596,200.
4. Fig. 5 – X-ray detector
5. To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicant notes that Sasaki et al. does not teach or suggest the use of a thermoelectric cooler (TEC).
6. The Sharma reference teaches the use of TECs in direct contact with the electronics of a low dose mammography machine. The instant application teaches the use of an enclosed refrigeration system for use with CT detector electronics that employs fans to direct cool air towards the CT detector electronics.
7. Contrary to the Examiner's assertion, the Sharma et al. reference makes no mention that cooling improves detector resolution.

8. As an initial matter, the Examiner has identified no teaching, suggestion, or motivation to combine in either reference other than the level of skill in the art. The level of skill in the art cannot be relied upon to provide the suggestion to combine references. MPEP 2143.01. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability and is the essence of impermissible hindsight.

Additionally, the Examiner's proposed modification of the prior art would change the principle of operation of the prior art invention being modified. Therefore, the teachings of the references are not sufficient to render the claims prima facie obvious. MPEP 2143. In summary, the Examiner has proposed employing the TEC device of the Sharma et al. reference, which is located in direct contact with the detector element, with the apparatus taught by the Sasaki et al. reference.

Thus, the combined teaching of the Sharma et al. reference and the Sasaki et al. reference would provide for a device having a TEC located in contact with the detector electronics with a fan circulating air through the plenum. The claims of this application are believed to be allowable because they are directed towards the use of a plenum through which air is circulated by fans after being cooled by an external TEC, which is not taught or suggested by the references cited. Allowance of claims 1-14 is respectfully requested.

9. Acknowledged.

10. The Examiner rejected claims 15 - 25 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-49 of U.S. Patent No. 6,931,092 (the Joshi et al. reference) in view of U.S. Patent No. 6,668,910 (the Gawve

reference). Applicant agrees that the Joshi reference does not "explicitly claim," teach or suggest the use of a blower cage containing the spreader plate and a circulation fan.

11. The Examiner then employs the Gawve reference for the use of the spreader plate 12 and fan 28 configured to blow air across the heat sink.

12. The applicant respectfully disagrees that the claims of the present application are rendered obvious by the combination of Gawve and Joshi et al. As an initial matter, the Gawve reference is directed towards the use of cooling fins as opposed to heat pipes. Secondly, neither the Gawve reference nor the Joshi et al. reference contains any teaching, motivation, or suggestion to combine the references. Further, the combination of the teachings of the Joshi et al. reference with teachings of the Gawve reference would change the principle of operation of the invention.

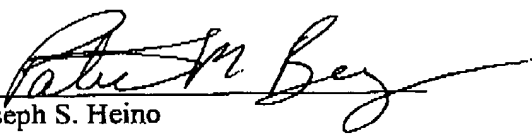
Specifically, claims 15-25 in the present application are directed towards a method for cooling the electronics of a CT detector by moving the heat away from the electronics area via heating tubes so that the heat can be dissipated outside the plenum holding the electronics. Unlike claims 15-25, the Gawve reference teaches the use of fins, which conduct heat away from electronics, but then are directly cooled via convection from a fan within the plenum. Such direct convective cooling of the electronics has a negative impact on electromagnetic interference shielding, leading to reduced image quality.

Similarly, the Joshi et al. reference, while teaching the use of heat pipes in connection with CT detector electronics, appears to simply void the heat into the plenum surrounding the detector electronics. As such, Joshi et al. offers no teaching, suggestions or motivation that would render claims 15-25 obvious. Therefore, claims 15-25 are believed to be in position for allowance.

Conclusion

The claims, as presented, describe a unique method for thermal management of CT electronics, not taught or suggested by the references cited. As such, allowance of all claims now presented is respectfully requested.

Respectfully submitted,
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